

## Beginnings of a *Grain* Revolution – A Senegalese experience with EAS privatepublic partnership in cereal value-chain development

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#### Introduction

Rediscovery of the power of markets, now featured as a centerpiece in most new agricultural development strategies, is perhaps the most notable change in the operational landscape of development practice over the past decade. Many early efforts focused on the opportunities offered by higher value fruit and vegetable crops and export commodities. The relatively inelastic demand for many highvalue products, combined with their often highly specific production requirements and growing global competitiveness, has served to limit the extent to which these opportunities can be broadly extended as a poverty reduction tool. In areas where growing conditions, proximity to markets and the necessary infrastructure backbone make this possible, the value-chain development approach applied to targeted commodities has succeeded in improving the lives of millions. In other contexts, such as the broad bands of semi-arid Africa, where rain-fed cereal production dominates, the approach has yet to be fully tested. If the value-chain development approach is limited to the more favorable physical and economic environments, farmers with greater resource endowments and more refined cash crop markets, what then for the hundreds of millions residing outside of these contexts?

As a partial response to this question, the experience of cereal value-chain development in Senegal is instructive in demonstrating that the core principles of market development can be successfully applied in less favorable environments and with the most basic of cereal crops. Obviously, the value-chain development approach is not the answer to all agricultural development questions. Improvements in basic infrastructure, investments in education, formulation of supportive trade policies, continued technological innovations responsive to evolving market demands and increasing risks of climate disruption, and the development of new sources of affordable energy are all required. The value-chain perspective does, however, provide an important organizing framework for investments in developing the business relationships within the agricultural sector that can, when barriers to entry are removed, improve the lives of the rural poor. For extension

and advisory service (EAS) providers, working within a market-oriented framework transforms their roles from a continuation of the supply-push orientation that has characterized much of extension work of the past half century -- "produce and the market will come" -- to a responsive demand-driven focus -- "produce what the markets want."

For nearly a decade, a constellation of private and public actors in the southern portion of Senegal's central peanut basin have, separately and jointly, experimented with and contributed to refinements in a cereal value-chain development model that has grown and matured to the benefit of both suppliers and buyers. Along the way this experience has shown the willingness of various private sector interests to invest in EAS where there are tangible gains to be had, and highlights the many areas where public extension services can have the greatest impact in supporting the development and success of sustainable private investment. On the basis of this experience, the argument can be made that market-led approaches to agriculture-based poverty reduction and increased food security actually increase the demand for modern EAS inputs.







#### **Case History**

The story of millet value-chain development in Senegal began through the separate but synchronous efforts led by local women entrepreneurs and a subregional research project. The personal narratives and project documents of those involved confirm a general chronology of events involving these two strands beginning in the 2001-02 growing season. As with most new ventures, early efforts encountered steep learning curves for those involved. Motivated by the poor quality of millet available in the market (dirty and mixed grains), Madame Coulibaly, owner-operator of La Vivriere, a Dakar-based processor producing a range of cereal-based products targeting urban consumers, became interested in establishing an independent, reliable source of quality millet for her milling operations. Through social contacts, she initially approached the community of Thiaré, in the region of Kaolack, with a request for access to land where she could contract local labor to produce millet under her specifications to supply her milling operations. The community denied her request for land but expressed interest in supplying her with millet. In response, Mme. Coulibaly agreed to supply a group of 13 farmers with 20 MT of fertilizer to cultivate 130 hectares of millet, with the cost of the fertilizer loan to be repaid in cereal at harvest. To consolidate their efforts and coordinate their new business venture, the farmers involved formed a groupement d'intérêt économique (GIE). Prior to harvest, Mme. Coulibaly reported setting the value of millet used to repay the fertilizer loan at 100 FCFA/kg. prevailing market price following harvest was 60 FCFA/kg, giving members of the GIE a healthy margin in addition to the yield benefits they realized from applying inorganic fertilizer. They repaid Mme. Coulibaly 100 percent for the loan. On the basis of this success, the following year 40 MT of fertilizer were supplied on similar terms of credit, supporting the involvement of 25 farmers. Rainfall during the 2002 growing season was reportedly poor, leading to low yields and higher market prices. Whether an alternative buyer willing to pay more was found or other factors were involved, the farmers and/or the intermediary through whom they worked failed to supply Mme. Coulibaly with sufficient grain to reimburse her for the loan of fertilizer. Frustrated with her losses, Mme. Coulibaly abandoned efforts to work independently any further with the Thiaré GIE.

One notable element in this experience is that Mme Coulibaly sought the help of the national extension agency, *Agence Nationale de Conseil Agricole et Rural* (ANCAR), to assist her in establishing a contract with the Thiaré GIE. She also paid 170,000 FCFA to ANCAR to cover the transportation costs for field agents to provide crop monitoring and advisory services to the Thiaré farmers that she was working with (Botorou et al., 2004).

#### **Actors and interests**

Processors. For the participating processors, the sourcing of a sufficient quantity of quality grain is their primary challenge. Grain purchased in the open market contains on average 15 percent "impurities," mainly small stones, sand and other grain types. Not only does this high level of contamination represent a direct loss of cereal, but the stones and sand damage milling equipment and require additional expense of hand sorting and washing. Thiaré Union is the only farmers' group from which the ATCL members purchase grain. Some members had independently worked with other farmer groups in the past but broke off the relationships when they encountered problems with farmers not honoring contracts. The general consensus is that the quality of grain provided by the Thiaré Union is consistently high, the price premium that they pay is acceptable, and generally buyers would welcome the opportunity to purchase more.

The top concern among processors is that of honoring contracts. Current contracts specify the volume and technical quality of the grain to be delivered: no more than 5 percent impurities, no rocks, no sand and consistent variety. Traceability of grain purchased is important to them, in case they have a problem. In the past, problems have been relatively small -- e.g., delivery of 15 MT of grain instead of the agreed upon 20 MT. Over the past year, however, two serious issues have emerged that concern the ATCL members. Last year one of the processors received a shipment that obviously had not been properly handled postharvest. Suspicions were that this grain was purchased on the open market from non-participating farmers and sold in an attempt to honor the delivery agreement. This year, several hundred MT promised for sale to ATCL members went "missing." Farmers maintain that the grain had been stolen from their warehouse at night, but one processor pointed out that, given the volume, it would take several trucks to transport it all, and this was certainly nothing that could be done secretly during the night.

Participating processors also take a great deal of comfort in the fact that ANCAR field agents are involved to ensure that "things are done correctly," and also to collect local market information upon which price premiums are based.



In 2003, a pilot project supported by the International Sorghum and Millet Collaborative Research Support Program (INSORMIL CRSP) and the Réseau Ouest et Centre Africain de Recherce sur le Mil (ROCAFREMI) began working with farmers in Thiaré. Under the project, which had started working with sorghum producers in Senegal the year before, researchers sought to field test the effect of several market development principles – quality-based pricing for clean, single-variety grain; inventory credit (warrentage) to take advantage of seasonal market price fluctuations, generally low immediately following harvest and rising afterwards; and marketing in volumes large enough to interest commercial buyers – with select groups of millet and sorghum producers and processors in Senegal, Mali, Burkina Faso and Niger (Botorou et al., 2003). In Senegal, ANCAR identified the Thairé GIE as a promising millet producer group for the project.

In the first year of working with the INSORMIL pilot, 50 producers from Thiaré were provided with inputs and technical assistance through the project. The farmers involved included the 25 farmers that had worked with Mme. Coulibaly the year before and members of a second farmers' GIE that had been supplying another processor with millet. Participating farmers each received sufficient inputs to cultivate one hectare of millet, including fertilizer (100 kg NPK; 50 kg urea) and 4 kg of seeds of Sounna 3, an improved millet variety developed by the national research institute, Institut Sénégalais de Recherches Agricoles (ISRA), as well as a tarp for threshing to protect the grain from contamination with sand and rocks, and bags for storage and transport. To address the issue of sustaining the initiative, the project required each participating farmer to contribute 350 kg of grain into a common stock controlled by the farmers. To manage their affairs, the two GIEs merged to form a single entity under the project. The collected grain was commercialized later in the year once the postharvest market price had risen (the warrentage system), with the proceeds used to purchase fertilizer and seeds for the following year. Individual farmers could sell more of their own grain through the consolidated GIE, but this was not required. In this fashion, 50 additional farmers were brought into the project each year, and over a threeyear period the overall number of farmers and hectares grew to around 150.

In the same year that the project started working with the Thiaré farmers, another Dakar-based woman entrepreneur, Mme. Deme, became involved with the project. Mme. Deme is the owner-operator of Free Work Services, a company manufacturing traditional cereal-based products sold primarily to European importers supplying West African expatriates in large urban markets. She is also the president of the Association du Transformateurs de Céréale Locales (ATCL), a group of 25 processors who had joined

ANCAR. The national extension agency describes itself as being market- and quality-focused. The agency is consolidating its efforts along the major value-chains in seven agroecological zones to create a critical mass of technical capacity. The current 240 staff members -- including 21 subject matter specialists and 190 field agents, with the remainder serving administrative roles at the national and regional levels -- cover only 60 percent of the identified need. In addition, as of 2010 there were a reported 546 farmer *Relais* (see below) assisting with extension delivery.

Operationally, field-level work plans are developed in collaboration with communities after an appraisal of local opportunities and needs. On the basis of the appraisal, a contract is drawn up with the community covering activities that will be carried out over the ensuing 6 months to a year. Typical types of activities include training, the introduction of new varieties and technical backstopping. Where relevant, ANCAR is required to work through registered service providers in coordinating delivery of inputs, training and other types of services. In these instances, field agents serve an important role in helping to mediate relations and oversee contract compliance. On average, 22 percent of the services provided by ANCAR are paid for by beneficiaries as either cash contributions or inkind (e.g., food, labor, etc.).

Relais. Each of the three Relais hired by the Thiaré Union work with around 200 farmers. None live in the village. Their technical backgrounds consist mainly of prior shortterm training acquired through their involvement with NGO projects and the subsequent training they have received through the ANCAR field agents. As the name implies ("relay"), the Relais pass on the technical messages to farmers that they receive from ANCAR field agents, although they have not been trained in any extension field techniques. The Relais use a system of local farmer contact groups, each of which is organized around a central farmer's field used as a demonstration plot. Over the course of the last agricultural season, the Relais reported visiting their contact groups four times to discuss seeding, controlling striga (a parasitic weed), harvesting and preparing grain for transfer to the warehouse. In addition, individual farmers are visited at four points in the season: to measure field size before seeding, after seeding to verify that the field was fully planted and that there is germination, to check that inputs are applied and to check for diseases prior to harvest.



together to protect and advance their business interests. At the time, members of the ATCL were annually buying a total of 300 MT of grain, with individual processors using up to 1 MT/day in their various milling operations. In sourcing grain directly from producers, members of the ATCL paid a 20 FCFA/kg premium on top of the agreed upon purchase price - 10 FCFA/kg as a quality incentive and 10 FCFA/kg for handling and transport. ATCL members did not provide any inputs on credit or technical assistance for the farmers with whom they worked.



#### **Evolving Relationships**

As the Thiaré GIE and processors adapted to their new business relations, they learned a number of important lessons. In the first year of contracted sales between the GIE and members of the ATCL, a purchase price was negotiated prior to the start of the agricultural season. The year proved to be a good one, with adequate rainfall and above average yields. As a consequence, markets become flooded with extra grain, and prices fell well below the negotiated sales price. Members of the ATCL buying grain nevertheless honored their commitment and purchased the grain at the higher agreed upon price. In the following year, below normal rainfall led to postharvest market prices rising higher than the negotiated sales price. Farmers, too, honored their agreement to sell their grain at the contracted price, though they sold only the minimum required; the rest of their production was sold on the local market at prevailing prices. These experiences left neither group satisfied and paved the way for adapting the approach used in setting the sale price and other changes under a follow-on to the INSORMIL pilot effort.

The success of the INSORMIL pilot effort led to the financing of a full project, the Production-Marketing Project, funded by the USAID West Africa Regional Program. The larger project supported activities in Mali, Niger and Senegal. In Senegal,

In addition to their work with the union, for which they are currently paid for 10 months to assist with both field activities and managing the receipt of grain, manual grading and management of warehouse stock, the *Relais* also work for hire with other governmental and NGO programs when the opportunities arise.

The decision taken by the union to pay the Relais' salaries is critical. Historically, across the subregion, the common practice is not to pay local points of contact assisting governmental and non-governmental extension efforts. In these situations, the individuals involved are often caught between growing local social pressures to continue providing the services that they render and the growing negative consequence of having to neglect their own farms. In some instances, the individuals have taken the only recourse open to them and fled the locality. The Relais employed by the Thiaré Union responded that their salaries are very important and that they use portions to hire labor to work their farms when they are too occupied. Of the chief complaints, they cited the need to provide their own transport and use personal cell phones; neither expense is reimbursed. The lack of transport and need for additional technical training were identified as their major constraints.

Overall, farmers reported that higher yields Farmers. associated with varietal change and use of inputs were their greatest benefit and motivation for participating in union activities. The increased production allows them to meet their household food needs and pay off debts. The 10 to 15 percent more that they receive for their production was not cited directly as a benefit, though reduced labor requirements due to changes in cultural practices associated with adoption of the new, shorter season variety were. In addition to reimbursing the union for the inputs they received, farmers are also required to "loan" the union 50 kg of additional grain each, which the union holds and sells off later in the year at higher prices. Farmers are paid for the value of the grain (determined at the time it was given to the union) plus a portion of the profits from selling at a higher price. The payment of these additional monies can take several months, which was cited as a complaint because farmers often hire day laborers, typically from outside of the community, to help with the harvest and need to pay them before these laborers can return home.



the project organized its activities around three components: the introduction of improved production technologies (varieties, fertilizers and other agronomic techniques), marketing strategies (quality price premium and seasonal price changes) and a capacity-building component (Abdoulaye et al., 2008). The expanded project worked with a much larger range of actors including ANCAR, ISRA and the food technology institute, Institut de Technologie Alimentaire (ITA), as well as processors, and on an expanded range of technical issues including local seed multiplication and testing of new processing equipment. Following the trajectory set into motion during the pilot effort, the Thiaré GIE, aided by the local ANCAR field agent, registered to become a legally recognized union and continued to expand its membership each year. By the end of the INSORMIL project in 2008, the union had grown to 300 members, each with one hectare of millet under cultivation. During this time, a number of important developments took place.

First, the INSORMIL project initially requested that ANCAR provide training and technical backstopping for the famers participating in the project. The agency did not have resources or sufficient staffing to post a field agent specifically in Thiaré at that time. As a compromise, an agreement was reached to engage two farmers under the project to serve as Relais, ANCAR's established practice of engaging local contacts to assist in responding to the day-today needs of farmers for technical support. ANCAR agreed to provide training and technical backstopping to the Relais as needed. Initially, 100 percent of the Relais' salaries were paid by the INSORMIL project; in the two subsequent years, 50 percent was paid by the farmers' union and 50 percent by ANCAR using resources from another donor project. Starting in 2006, 100 percent of the Relais' salaries have been paid by the union. The Relais proved such a vital force in assisting compliance by union members with the technical terms of their commercialization effort, both in applying field-level management practices and assisting with postharvest stock management, that the union increased the number of Relais from two to three as the membership grew and intended to hire more during the 2011 growing year.

Second, the union evolved basic grades of cereal quality and a system of traceability among its members. Initially, all farmers producing grain under contract were required to attach a ticket to each sack with their name. If, upon receipt at the processing unit a buyer was unhappy with the quality of the grain, the buyer could have it returned to the producer. The producer would then be responsible for reimbursing the volume of grain in question with clean grain, as well as paying the transport costs (each way). These sanctions have been carried out in a few widely known instances. As the contracted volumes have grown, the union began using a centralized system of hand sorting all the grain received from its members. Bags are still labeled with the

producers' names, but after an initial inspection to determine if the grain is of acceptable quality at the point when the union assumes ownership of the grain, the bags are emptied and sorted into three quality grades: "A," sold under contract to their Dakar-based buyers, "B," sold to other regional buyers, and "C," sold in the local weekly market. Depending on the volume, 40 to 50 women are hired by the union to clean and sort the grain. The *Relais* are paid by the union to oversee the tasks of sorting and stock management. Although the Thiaré Union is now well known among cereal buyers, initially it was the ANCAR field agent who organized field visits by several key buyers (e.g., ATCL) to come to the village and see the quality of grain that the farmers could provide and promoted the payment of a price premium to reward and encourage farmers to maintain quality standards.

Third, on the basis of their initial experiences, the union and buyers have developed an improved market-based pricing scheme used in their contracts. Under the new approach, instead of setting prices prior to the growing season, sellers and buyers sign a general contract specifying the volume, timing and quality characteristics of the grain being sold. The contracts with the ATCL specify that the grain supplied can contain no more than 5 percent impurities, no rocks and no sand, and is of a pure variety. The contract also stipulates that at the agreed upon time of sale, an average would be taken of spot market prices at two nearby weekly markets, and the 20 FCFA/kg price premium would then be applied to the current average market sales price. In the first few years after adopting this real-time price-setting scheme, ANCAR field agents collected and provided market price information to both groups. More recently, the farmers' union has taken over responsibility for collecting this information, with ANCAR serving as a source of verification as needed. The fact that ANCAR agents remain involved in determining the price, albeit one step removed, gives the buyers' confidence in the process.

Fourth, the union has begun using formal lines of credit through Crédit Mutuel du Sénégal (CMS). Initially, the INSORMIL project provided direct financial subsidies for each group of new farmers joining the effort, requiring that they contribute a portion of their harvest to generate a cash reserve that could be used to refinance their activities the following year. Though this ensured sustainability of the effort from one season to the next for those farmers involved, overall the farmers were still dependent on project financing for its expansion. By the end of the project, the ANCAR field agent had helped the Thiaré GIE to register as a legal union, a requirement to become eligible for a bank loan, and worked to persuade the local bank, CMS, to begin providing a line of credit to the union. In 2010, after two years of working with the bank, the union wanted to undertake a major expansion, more than doubling the



number of hectares that it was supporting -- from 300 to 700 -- in response to demands from additional farmers to join the union. (Another 500 farmers also wanted to join, but the union leadership was nervous about expanding too rapidly and limited the acceptance of new members.) The total volume of credit requested by the union exceeded the local branch office's authority, and a request was passed on to the regional office. The union had wisely established a cut-off date for making a decision about input purchases to ensure that the inputs would be available for that season's crop, and finally had to break off negotiations with the bank when discussions had dragged on too long. In the end, the union financed the purchase of inputs for 400 hectares using its own resources. In 2011, the union was negotiating with other lenders in hopes of securing an expanded line of credit to help meet its expansion goals.

As in the case of mediating relations between the union and the bank, the ANCAR field agent also played an important role in positioning the union to begin negotiating purchase agreements with input suppliers. The annual solicitation of competitive bids from suppliers and the signing of purchase agreements now make up one of the major tasks of the union president and other officials. In both cases -- with the CMS and input suppliers -- the union is considered to be a very solid client, with average business volume and superior performance.



Key elements of EAS support in value-chain development:

- Determining what the market wants (e.g., a single millet variety, Sounna 3, free of stones, sand and other contaminants).
- Providing technical recommendations on cultural practices that support farmers in meeting their production goals (e.g., via paid village-level workers, Relais, with support from the national extension service).

- Initial brokering of key market relations (e.g., buyers, formal credit institutions, inputs suppliers), beginning with organizational capacity development.
- Establishing use of quality-based contracts and live market information to set prices (e.g., initially carried out by extension, later transferred to farmers).
- Establishing a system of quality assurance from the field to final sale involving field inspections, grading procedures and traceability of production to ensure compliance with contracted quality standards.

The cumulative experience over the past decade has allowed the farmers of Thiaré to make tremendous gains in becoming true market players. In the process, this experience has come to define the model that the national extension system and others are beginning to use in their programming. The notable achievements of the Thiaré Union also serve to illustrate areas of future need that EAS programming will have to address if such groups are to prosper and generate the types of enduring impact that their initial experience suggests is possible.

#### **Future Focus**

As the Thiaré Union's business has grown in size and complexity, one area of increasing concern is whether the union has the internal human resources necessary to manage business operations at expanding scales. The number of fully literate and numeric farmers within the union is very limited. As the size of the union grows, other weaknesses in leadership skills and decreasing transparency in decision making are beginning to appear. Complaints have been raised that important decisions are increasingly being made without consulting with or informing the union membership. The management style that served the group's needs when it was relatively small is not amenable to the demands of the union now that the membership has grown to include farmers from a growing number of smaller villages surrounding Thiaré.

In addition, attracted by the success of the union, a new USAID-funded project has approached the union to produce 200 hectares of organic sorghum and another 100 hectares of maize under contract, using the contract-based quality production-supply model that the farmers' union had developed in millet production. The question here is whether the Thiaré Union is ready for such a substantial expansion of its activities, one that would involve not only increasing millet production, which the union seems to have well under control, but expanding into two new commodities and a new certification program with which the group has no experience. To satisfy its needs to generate success by



working through the Thiare Union, the project would be injecting significant amounts of new capital into a process that had just weaned itself from external resources. The risk is that while inducing the union to take on a newly expanded range of activities may enable the project to meets its short-term targets, it may leave the union in a situation from which it may not be able to fully recover.

Also, as it grows in size, the union's resources become an increasingly attractive target for both internal and external predators. It is not certain that transparency in the business operations and management is adequate to protect the members from theft and corruption. The union had signed a three-year purchase agreement to supply the ATCL's members with grain, but the major share of the 2010 harvest reportedly went "missing," with farmers claiming that their storage facility was broken into during the night, while reports suggest that the grain was sold to buyers from Toba, the religious center of the country and home to a number of large economically powerful families and traders. One of the remarkable features of the union's early success was its honoring of contracts, even when this meant that members did not maximize immediate returns. Establishing a record of good-faith behaviors was critical in building trust-based, longterm producer-buyer relationships with groups such as the ATCL, which had abandoned working with other farmer groups because of contract non-compliance. The risk of succumbing to temptations of short-term gains places in jeopardy the union's future credibility and bargaining power with buyers. The processors interviewed listed contract noncompliance in working directly with farmer groups on a quality/volume basis as their primary concern.



Despite the union's growing membership, those involved represent the relatively better off farmers in the area. On average, union members are those having access to over 5 hectares of land (constituting 50 percent of the local households) and possessing the necessary labor, equipment and personal character, as deemed by the union leadership to which potential new members must apply. Few farmers from the remaining 50 percent of producers in the area, who on average have access to .5 to 3 hectares of land, are members of the union. Women also are largely excluded from direct union membership. Though approximately 50 women are registered as union members, fewer than 20 actually receive direct benefits from union activities; in the

majority of cases, it is their husbands who benefit. The union will need to acknowledge and address these inequalities if poorer households and women are to benefit.

#### **Lessons Learned**

The case of the development of the Thiaré millet producers' union highlights a number of important lessons for EAS involvement in value-chain development. The case clearly shows the willingness and capacity of the private sector to invest in EAS where there are significant self-interests to be met. The perspective taken by Mme. Coulibaly in her initial investments in the provision of technical support to farmers responding to her production needs is common to outgrower schemes in which the central purchasing entity offers EAS to participating growers to ensure a stream of quality produce. The later investments made by the union itself, as a private sector entity, in paying for EAS services for its members is indicative of instances in which producers' organizations are involved in more downstream marketing activities and must serve as their own quality control filter. The instructive feature in both these examples is the critical role played by the public sector extension system. More generally, it can be said that effective self-interest in meeting EAS needs is a key element of sustainable demand-driven systems.

The case also clearly shows the essential integrating role that can be played by public sector extension institutions within a market-oriented environment. In the Thiaré case, ANCAR served a vital role in bringing together buyers and producers, producers, and financial institutions and input suppliers; in introducing the importance of market information, quality-based contracts and systems of quality maintenance; and in providing technical backstopping and continued in-service training to locally hired and paid *Relais*. The fact that in each instance its role was transitory, or limited in scope, helping to establish relationships and build capacities, not dependency, points to another key of modern market-oriented EAS provisioning.

Looking beyond the Senegalese context, the ability of producers to discover and respond to market signals, even for lower value staple crops, can have major impacts on their net incomes. (Thiaré farmers increased their income on average by nearly 60 percent, with the best farmers increasing their profits by nearly 200 percent.) The fact that for many producers, climate conditions and market proximity, among other factors, limit their production alternatives means that it will be important for development assistance efforts to learn to adapt and apply value-chain development principles broadly, not just for high-value commodities in mature markets and more favored environments. To do so requires that several critical issues be addressed simultaneously:



- First, as illustrated in this case, is the need for awareness of what the market wants in terms of the type, quality, quantity and timing of produce. Outside of cash crop commodity chains, most EAS programs have had little or no experience in assisting farmers to understand and respond to market-based signals. Consequently, EAS providers will need to expand their knowledge base and skill set if they are to assist farmers in becoming more market-driven in implementing viable business plans.
- Second, the case highlights the importance of farmers organizing into groups and coordinating and enforcing the behaviors of their members -- as well as demanding good behavior on the part of their leaders -- to be capable of participating in volume-based quality markets. Linked to this are the needs for new knowledge and skills required to manage business at increasing scales, beginning with basic literacy and numeracy skills and continuing to include a general fluency in the full suite of business operations and group management skills.
- Third, the case clearly demonstrates the plurality of contributions no one organization or set of skills was solely responsible for the success of the Thiaré producer group. From establishing critical relationships in the supply of improved varieties, fertilizer, credit and crop production advice to producers, to the selection of varieties suitable to processed goods, and development, testing and adoption of processing equipment that allowed processers to expand their businesses and demand greater volumes of higher quality grain, a wide range of actors were involved with multiple sources of EAS. Programmatically, an old lesson with new relevance -- identifying and building relationships where each source of innovation can express itself -- will be a chief challenge in future EAS efforts.
- Fourth, every success story defines its own limitations.
   The fact that the Thiaré producer group had to limit acceptance of new members into the association in part because of its inability to manage larger numbers / volumes indicates an unmet need for higher level leadership and business management skills. The demands of value-chain development require EAS providers that understand and are capable of responding to such needs. Programmatically, such demands require

a redefinition of the traditional roles evident in many extension systems, long with an increased flexibility in responding to localized opportunities using proven broadly applicable principles for EAS providers to have success in working up and down specific value-chains.

For the future of EAS practice, the value of the Thiaré Union's experience and experiences of similar groups lies in the ability to identify, refine and scale up the application of key concepts and principles in practice, including the restraint shown by the government and NGOs in not inserting themselves into the value-chains; therein lies the foundations of a grain revolution.

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